

What is claimed and desired to be secured by United States Letters Patent is:

1. A sulphurous acid generator comprising:
a supply of sulphur dioxide gas conducted in a first conduit and means for drawing the sulphur dioxide gas through the first conduit;
a supply of water conducted in a second conduit; and
a third conduit comprising:
a blending portion, at least one contact containment portion, and at least one agitation portion,
the blending portion comprising means for bringing the sulphur dioxide gas in the first conduit and ^{water from} ~~substantially all the water~~ in the second conduit into contained, codirectional flow whereby the sulphur dioxide gas and water are brought into contact with each other,
the contact containment portion(s) comprising a passageway through which the sulphur dioxide gas and substantially all the water codirectionally flow in contact with each other and in which at least a portion of the sulphur dioxide gas reacts with water to form sulphurous acid,
the agitation portion(s) comprising means for mixing and agitating the codirectionally flowing sulphur dioxide gas and water/sulphurous acid to facilitate the reaction and dispersement of sulphur dioxide gas ^{with the} ~~water/sulphurous acid~~, and
means for discharging the sulphurous acid and unreacted sulphur dioxide gas,

the first and third conduits defining an open system thereby avoiding
subjecting the sulphur dioxide gas to a system pressure.

2. The sulphurous acid generator of claim 1 further comprising:

a mixing tank into which the sulphurous acid and unreacted sulphur dioxide are
discharged from the third conduit, the mixing tank temporarily retaining the
discharged sulphurous acid in a submersion pool;

means for facilitating and maintaining the submersion of unreacted sulphur dioxide
gas discharged from the third conduit into the submersion pool of sulphurous
acid to substantially reduce the separation of unreacted sulphur dioxide gas
from contact with the sulphurous acid to promote further reaction of the
sulphur dioxide gas into the sulphurous acid; and

the mixing tank defining an outlet through which the sulphurous acid may pass to
exit the mixing tank,

the mixing tank, the facilitating and maintaining means, and the outlet defining an
open system thereby avoiding subjecting the sulphur dioxide gas to a system
pressure.

3. The sulphurous acid generator of claim 2 further comprising:

an absorption tower into which free floating unreacted sulphur dioxide gas passes
from the mixing tank, the absorption tower comprising means for creating a
flow of water counter-current to the flow of sulphur dioxide gas, the tower
containing a tortuous maze of pathways through which the water and sulphur
dioxide gas will pass in counter-current flow, and in which sulphur dioxide
gas and water come into contact to form sulphurous acid,

the absorption tower having an exhaust vent through which sulphur dioxide

not reacted in the tower may pass.

4. The sulphurous acid generator of claim 3 further comprising:
- a supply of unreacted sulphur dioxide gas conducted in a vent conduit in communication with the exhaust vent and means for drawing the sulphur dioxide gas through the vent conduit;
- a supply of water conducted in a supplemental water conduit;
- a fourth conduit comprising:
- a blending portion, at least one contact containment portion, and at least one agitation portion;
- the blending portion comprising means for bringing the sulphur dioxide gas in the vent conduit and ^{water from} ~~substantially all the water~~ in the supplemental water conduit into contained, codirectional flow whereby the sulphur dioxide gas and water are brought into contact with each other,
- the contact containment portion(s) comprising a passageway through which the sulphur dioxide gas and substantially all the water codirectionally flow in contact with each other and in which at least a portion of the sulphur dioxide gas reacts with the water to form sulphurous acid,
- the agitation portion(s) comprising means for mixing and agitating the codirectionally flowing sulphur dioxide gas and water/sulphurous acid to facilitate the reaction and dispersement of sulphur dioxide gas into the water/sulphurous acid, and

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KIRTON & McCONKIE
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1800 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

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